

Universally Attachable Rotary Brush
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BACKGROUND OF THE INVENTION

Field of the Invention

[0001] This invention relates to accessories for use with trimmers.

General Background

[0002] Trimmers are now a common tool used by many Americans in their home or garden. In the past, trimmers have been used for only one purpose: cutting or trimming weeds or grass. Trimmers have thus been an underutilized tool, since the spinning shaft that drives the trimmer's cutting head can be used for many other purposes. Thus, rather than just a single use tool, the trimmer can operate as platform for many different accessories. The present invention is one example of such an accessory, namely a rotating brush that can be attached to virtually any gasoline trimmer.

SUMMARY OF THE INVENTION

[0003] The present invention is a trimmer head accessory comprising a (i) head with brush bristles on its underside, and (ii) attachment hardware. The attachment hardware may comprise (i) a spacer cup, (ii) a washer, and (iii) a set of fasteners. The head and attachment hardware are designed so that the present invention can convert virtually any gasoline trimmer into an rotary scrubbing tool. The tool can be used for cleaning driveways, patios, garages, walls, wood decks, and even indoor surfaces.

BRIEF DESCRIPTION OF THE DRAWINGS

[0004] Fig. 1 is an exploded front perspective view of a trimmer head accessory according to an embodiment of the present invention.

[0005] Figs. 2 and 3 show a trimmer head accessory according to an embodiment of the present invention being attached to a trimmer head that contains a spool housing.

[0006] Figs. 4 and 5 show a trimmer head accessory according to an embodiment of the present invention being attached to a trimmer head from which the spool housing has been removed.

[0007] Fig. 6 is a top view of a trimmer head accessory according to an embodiment of the present invention.

[0008] Fig. 7 is a bottom view of a trimmer head accessory according to an embodiment of the present invention.

[0009] Fig. 8 is a cross section view taken along line 8 - 8 of Fig. 6 of a trimmer head accessory according to an embodiment of the present invention, as attached to a trimmer head from which the spool housing has been removed.

[0010] Fig. 9 is the same as Fig. 8, except that it shows a trimmer head accessory according to an embodiment of the present invention as attached to a trimmer head with a spool housing.

[0011] Fig. 10 shows an exemplary set of fasteners to be provided with a kit according to an embodiment of the present invention.

DETAILED DESCRIPTION

[0012] The present invention is a trimmer head accessory comprising a (i) head 30 with bristles 52 on its underside, and (ii) attachment hardware.

[0013] The head 30 has a annular plate 50 and a tapered protrusion 32. See Figs. 1 - 9. The tapered protrusion 32 is hollow and forms a head recess 34 on the underside of the head. See Figs. 7, 8, and 9. A boss 38 descends from the top of the tapered protrusion 32 into the head recess 34. See Figs. 8 and 9. The boss 38 has a recess (the boss recess) within it, and within this recess a protective insert 40 may be placed. See Figs. 1, 7, 8 and 9. This protective insert 40 may be in contact with the nut 42 or other fastener that attaches to the trimmer's threaded shaft 62 or 74. See Figs. 1, 8 and 9.

[0014] A central aperture 36 extends through the center of the tapered protrusion 32, and into the boss recess in the boss 38 through the protective insert 40.

[0015] Bristles 52 are attached on the underside of the annular plate 50. See Figs. 1, 3, 5, 7, 8, and 9.

[0016] Thus, the head 30 has bristles 52 on the peripheral region of its underside, and a head recess 34 in the central region of the head's 30 underside. See Fig. 7. On its top side, the head has a protrusion 32 in its central region, and an annular plate in its peripheral region. See Fig. 6.

[0017] The attachment hardware of the present invention includes a spacer cup 10, a washer 20, and a set of fasteners 80. The spacer cup 10 is hollow, and is used to install the device when the trimmer's spool housing cannot be removed. See Figs. 1 - 3, and 8.

[0018] Typically, only one fastener is needed to attach the head 30 to any given trimmer. However, an entire set 80 of diverse fasteners should be provided, so that the head can be attached to virtually any trimmer, regardless of the size or nature of the shaft. Thus, the fasteners may be nuts for attachment to externally threaded shafts, or bolts to attach to internally threaded shafts, or any other means for

attachment to a shaft. An exemplary set 80 of fasteners is shown in Fig. 10. If nuts or bolts are used, they will typically be hexagonal. Special nuts or bolts may need to be machined to accommodate certain trimmers. In a typical kit, there may be 12 to 20 fasteners.

[0019] While the fasteners need to fit with various sizes and configurations of trimmer head shafts, they also need to have uniform head size to snugly fit into the recess of the boss 38. Thus, while the "internal dimensions" (the shaft diameter for the bolts and the bore size for the nuts) of the fasteners will vary from fastener to fastener, the "external dimensions" (the size and shape of the bolt heads and the periphery of the nuts) must be remain constant, and must conform to the dimensions of the recess within the boss 38. See Fig. 10. In this way, a single device can be used with many different types of trimmers. The pitch, size, orientation (left handed or right handed), and number of threads per inch for the fasteners can vary depending on the particular application.

[0020] In operation, the brush head is first attached to the shaft of the trimmer. There are two attachment methods, depending on whether the trimmer's spool housing is removed or not.

[0021] If the housing is removed, then the procedure depicted in Figs. 4 and 5 is used. In this procedure, the housing 72 is removed from the trimmer head base 70, leaving the exposed threaded shaft 74. See Fig. 4. Then the head 30 is placed on the shaft 74, and an appropriate nut 42 or other fastener is threaded on the shaft to secure the head 30 to the trimmer. Typically, no tools are required. The trimmer has thus been converted to a rotary brush, and is ready for use. Figure 8 is a cross section view of this embodiment.

[0022] Alternatively, if the spool housing 60 need not be removed, then the spool is removed, exposing the threaded shaft 62 within a recess of the spool housing 60. See Fig. 2. The spacer cup 10 is then placed within this recess and through the threaded shaft 62. See Fig. 2. A washer 20 can then placed over the shaft 62, and the head 30 can be placed atop the washer 20, with the threaded shaft extending through the central aperture 36 into the recess of the boss 38. See Fig. 3. An appropriate nut 42 or other fastener is then threaded on the shaft to secure the head

30 to the trimmer, without the need for a wrench or similar tool.

[0023] Once the head 30 is installed on the trimmer, the device is ready for use. The trimmer is operated in the usual way, but instead of causing a cutting head to rotate, the trimmer's shaft now causes the brush to rotate, thereby transforming the trimmer into a scrubbing tool.

[0024] The present invention can be used with most any gasoline trimmer, and also with certain electric trimmers. The present patent is not limited to trimmers of any particular configuration or drivetrain, except as provided by the express language of the claims.

[0025] The components of the present invention can be manufactured of many different materials, including but not limited to plastics and other polymers and metals.

[0026] One skilled in the art will appreciate that the present invention can be practiced by other than the preferred embodiments, which are presented for purposes of illustration and not of limitation. Thus, although the present patent has focused on attaching a rotary scrubber to a trimmer, the present invention can be used to attach virtually any trimmer accessory to a trimmer, where "accessory" is defined to include all trimmer head attachments besides cutting heads.